

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

F1_RE

C Number: C20519

Lock Date: 06/09/2009

Cage Range: ALL

Date Range: ALL

Reasons For Removal: ALL

Removal Date Range: ALL

Treatment Groups: Include ALL

Study Gender: Both

TDMSE Version: 2.4.0.0_003

PWG Approval Date: NONE

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DAY ON TEST

WISTAR HAN RATS MALE**Control**

ANIMAL ID

0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
9	9	9	9	9	9	9	9	9	9	9
3	3	3	3	3	3	3	3	3	3	3
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1
1	2	3	4	5	6	7	8	9	0	

*** TOTALS****ALIMENTARY SYSTEM**

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Pancreas Inflammation, Focal, Chronic	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
--------------	---	---	---	---	---	---	---	---	---	---	----

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

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WISTAR HAN RATS MALE	DAY ON TEST											
		0 0 9 3										
Control	ANIMAL ID											* TOTALS
		0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 8	0 0 0 0 9	0 0 0 0 0	
Heart		+ + + + + + + + + +										10
ENDOCRINE SYSTEM												
Adrenal Cortex		+ + + + + + + + + +										10
Adrenal Medulla		+ + + + + + + + + +										10
Islets, Pancreatic		+ + + + + + + + + +										10
Parathyroid Gland		+ M + + + + + + + +										9
Pituitary Gland		+ + + + + + + + + +										10
Thyroid Gland		+ + + + + + + + + +										10
GENERAL BODY SYSTEM												
NONE												
GENITAL SYSTEM												
Epididymis		+ + + + + + + + + +										10
Preputial Gland		+ + + + + + + + + +										10
Prostate		+ + + + + + + + + +										10
Seminal Vesicle		+ + + + + + + + + +										10
Testes		+ + + + + + + + + +										10

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X .. Lesion present

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DAY ON TEST

0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
9	9	9	9	9	9	9	9	9	9	9
3	3	3	3	3	3	3	3	3	3	3
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1
1	2	3	4	5	6	7	8	9	0	

* TOTALS

WISTAR HAN RATS MALE

Control

ANIMAL ID

HEMATOPOIETIC SYSTEM

Bone Marrow

+ + + + + + + + + + 10

Lymph Node, Bronchial

+ + + M + + + + + + 9

Lymph Node, Mandibular

+ + + + + + M + + + + 9

Lymph Node, Mediastinal

+ + + + + + + + + + 10

Lymph Node, Mesenteric

+ + + + + + + + + + 10

Spleen

+ + + + + + + + + + 10

Thymus

+ + + + + + + + + + 10

INTEGUMENTARY SYSTEM

Mammary Gland

M M M M M M M M M M 0

Skin

+ + + + + + + + + + 10

MUSCULOSKELETAL SYSTEM

Bone

+ + + + + + + + + + 10

NERVOUS SYSTEM

Brain

+ + + + + + + + + + 10

RESPIRATORY SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

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| WISTAR HAN RATS MALE | DAY ON TEST | | | | | | | | | | | * TOTALS |
|---|-------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------|
| | | 0
0
9
3 | |
| Control | ANIMAL ID | 0
0
0
0
0
1 | 0
0
0
0
0
2 | 0
0
0
0
0
3 | 0
0
0
0
0
4 | 0
0
0
0
0
5 | 0
0
0
0
0
6 | 0
0
0
0
0
7 | 0
0
0
0
0
8 | 0
0
0
0
0
9 | 0
0
0
0
0
0 | * TOTALS |
| Larynx | | + + + + + + + + + + | | | | | | | | | | 10 |
| Lung | | + + + + + + + + + + | | | | | | | | | | 10 |
| Nose | | + + + + + + + + + + | | | | | | | | | | 10 |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | | | | | | | | 1 | 2 | | | 2 1.5 |
| Trachea | | + + + + + + + + + + | | | | | | | | | | 10 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | |
| Eye | | + + + + + + + + + + | | | | | | | | | | 10 |
| Harderian Gland | | + + + + + + + + + + | | | | | | | | | | 10 |
| URINARY SYSTEM | | | | | | | | | | | | |
| Kidney | | + + + + + + + + + + | | | | | | | | | | 10 |
| Nephropathy | | | | | | | | 1 | | | | 1 1.0 |
| Urinary Bladder | | + + + + + + + + + + | | | | | | | | | | 10 |

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Lab: BNW

DAY ON TEST

WISTAR HAN RATS MALE

25 mg/m³

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 |

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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DAY ON TEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

WISTAR HAN RATS MALE

25 mg/m³

ANIMAL ID

* TOTALS

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx

Inflammation, Chronic Active

Metaplasia, Squamous

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--------|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
| 1 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | | 10 1.6 |
| 2 | 2 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | | 10 2.3 |

Lung

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
|---|---|---|---|---|---|---|---|---|---|---|----|

Nose

Olfactory Epithelium, Accumulation, Hyaline
Droplet

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|-------|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
| | | | | 2 | 1 | | 1 | | | | 3 1.3 |

Trachea

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
|---|---|---|---|---|---|---|---|---|---|---|----|

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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Lab: BNW

DAY ON TEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

WISTAR HAN RATS MALE

50 mg/m³

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

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DAY ON TEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 |

WISTAR HAN RATS MALE

50 mg/m³

ANIMAL ID

* TOTALS

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx

Erosion, Focal

Inflammation, Chronic Active

Metaplasia, Squamous

Ulcer, Focal

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| | | | | | 1 | | | | | |
| 2 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 2 | |
| 2 | 2 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | |
| | | | | | 1 | | | | | |

10

1 1.0

10 2.3

10 2.4

1 1.0

Lung

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| | | | | | 1 | | | | | |

10

Nose

Olfactory Epithelium, Accumulation, Hyaline
Droplet

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| 2 | 2 | 2 | 2 | 1 | | 1 | | 1 | | |

10

6 1.5

Trachea

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | |

10

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

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DAY ON TEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

WISTAR HAN RATS MALE

100 mg/m³

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

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DAY ON TEST

WISTAR HAN RATS MALE**100 mg/m³**

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

*** TOTALS****NERVOUS SYSTEM**

NONE

RESPIRATORY SYSTEM

Larynx

Inflammation, Chronic Active

Metaplasia, Squamous

Ulcer, Focal

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 3 | 4 | 2 | 3 | 4 | 4 | |
| 2 | | | | | | | | | | |

10**10 2.8****10 3.6****1 2.0**

Lung

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | |

10

Nose

Inflammation, Suppurative

Olfactory Epithelium, Accumulation, Hyaline
Droplet

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | |
| 3 | 2 | 1 | | 1 | 2 | 1 | 2 | 2 | 2 | 2 |

10**1 1.0****9 1.8**

Trachea

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | |

10**SPECIAL SENSES SYSTEM**

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

DAY ON TEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

WISTAR HAN RATS MALE

200 mg/m³

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

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Lab: BNW

DAY ON TEST

WISTAR HAN RATS MALE**200 mg/m³**

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

*** TOTALS****NERVOUS SYSTEM**

NONE

RESPIRATORY SYSTEM

Larynx

Inflammation, Chronic Active

Metaplasia, Squamous

Ulcer, Focal

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--------|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
| 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 10 2.9 |
| 4 | 4 | 4 | 3 | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 10 3.7 |

1 2.0

Lung

Alveolus, Infiltration Cellular, Histiocyte

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--------|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
| 1 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 10 1.3 |

1 2.0

Nose

Olfactory Epithelium, Accumulation, Hyaline Droplet

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|-------|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
| 2 | 2 | 3 | 2 | 3 | | | 2 | 3 | 1 | | 8 2.3 |

1 2.3

Trachea

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
|---|---|---|---|---|---|---|---|---|---|---|----|

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

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Species/Strain: RATS/Wistar Han

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Metal working fluids (Syntilo 1023)

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Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

DAY ON TEST

WISTAR HAN RATS MALE**400 mg/m³**

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

*** TOTALS****ALIMENTARY SYSTEM**

Esophagus

Intestine Large, Cecum

Intestine Large, Colon

Intestine Large, Rectum

Intestine Small, Duodenum

Intestine Small, Ileum

Intestine Small, Jejunum

Liver

Pancreas

Salivary Glands

Stomach, Forestomach

Stomach, Glandular

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

+ + + + + + + + + + 10

CARDIOVASCULAR SYSTEM

Blood Vessel

+ + + + + + + + + + 10

Heart

+ + + + + + + + + + 10

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

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First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

DAY ON TEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

WISTAR HAN RATS MALE

400 mg/m3

ANIMAL ID

* TOTALS

ENDOCRINE SYSTEM

Adrenal Cortex

+ + + + + + + + + + 10

Adrenal Medulla

+ + + + + + + + + + 10

Islets, Pancreatic

+ + + + + + + + + + 10

Parathyroid Gland

+ + + + + + + + + + 10

Pituitary Gland

+ + + + + + + + + + 10

Thyroid Gland

+ + + + + + + + + + 10

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis + + + + + + + + + + 10

Preputial Gland + + + + + + + + + + 10

Prostate + + + + + + + + + + 10

Seminal Vesicle + + + + + + + + + + 10

Testes + + + + + + + + + + 10

HEMATOPOIETIC SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

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Lab: BNW

| WISTAR HAN RATS MALE | 400 mg/m ³ | DAY ON TEST | | | | | | | | | | | * TOTALS | |
|-------------------------------|-----------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|------------------|------------------|----------|--|
| | | | 0
0
9
3 | 0
0
9
3 | 0
0
9
3 | | |
| ANIMAL ID | | 0
1
0
0
0
1
2 | 0
1
0
0
0
3
3 | 0
1
0
0
0
4
4 | 0
1
0
0
0
5
5 | 0
1
0
0
0
6
6 | 0
1
0
0
0
7
7 | 0
1
0
0
0
8
8 | 0
1
0
0
0
9
9 | 0
1
0
0
0
0
0 | | | | |
| | | Bone Marrow | + | + | + | + | + | + | + | + | + | + | 10 | |
| | | Lymph Node, Bronchial | + | + | + | + | + | + | + | + | + | + | 10 | |
| | | Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | 10 | |
| | | Lymph Node, Mediastinal | + | + | M | + | + | + | + | + | + | + | 9 | |
| | | Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | 10 | |
| | | Spleen | + | + | + | + | + | + | + | + | + | + | 10 | |
| | | Thymus | + | + | + | + | + | + | + | + | + | + | 10 | |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | | |
| Mammary Gland | | | | | | | | | | | | | | |
| Skin | | | | | | | | | | | | | | |
| Subcutaneous Tissue, Edema | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | |
| Bone | | | | | | | | | | | | | | |
| + | | | | | | | | | | | | | | |
| NERVOUS SYSTEM | | | | | | | | | | | | | | |
| Brain | | | | | | | | | | | | | | |
| + | | | | | | | | | | | | | | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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I .. Insufficient tissue

M .. Missing tissue

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Lab: BNW

| WISTAR HAN RATS MALE | 400 mg/m ³ | DAY ON TEST | | | | | | | | | | | * TOTALS | |
|------------------------------|---|-------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|--|
| | | | 0
0
9
3 | | |
| ANIMAL ID | | | | | | | | | | | | | | |
| | Larynx | + | + | + | + | + | + | + | + | + | + | + | 10 | |
| | Erosion, Focal | | | | | | 1 | | | | | | 2 1.0 | |
| | Inflammation, Chronic Active | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 10 2.9 | |
| | Metaplasia, Squamous | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 10 4.0 | |
| | Ulcer, Focal | 2 | 2 | 1 | | | 2 | | | | | | 4 1.8 | |
| | Lung | + | + | + | + | + | + | + | + | + | + | + | 10 | |
| | Alveolus, Infiltration Cellular, Histiocyte | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 2.0 | |
| | Nose | + | + | + | + | + | + | + | + | + | + | + | 10 | |
| | Olfactory Epithelium, Accumulation, Hyaline Droplet | 4 | 3 | 3 | 2 | | 2 | 4 | 4 | 4 | 2 | | 8 3.0 | |
| | Olfactory Epithelium, Necrosis | | | | | | | 1 | | | | | 1 1.0 | |
| | Trachea | + | + | + | + | + | + | + | + | + | + | + | 10 | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | |
| Eye | | | | | | | | | | | | | | |
| Harderian Gland | | | | | | | | | | | | | | |
| URINARY SYSTEM | | | | | | | | | | | | | | |
| Kidney | | | | | | | | | | | | | | |
| Urinary Bladder | | | | | | | | | | | | | | |

*** END OF MALE DATA ***

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

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Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|------------------------|-------------|----------|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Control | ANIMAL ID | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | * TOTALS | | | | | | | | | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|----|
| Esophagus | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | 10 |
| Liver | + | + | + | + | + | + | + | + | + | + | 10 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | 10 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | 10 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|----|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | 10 |
| Heart | + | + | + | + | + | + | + | + | + | + | 10 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

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First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

| | DAY ON TEST | | | | | | | | | | | | |
|------------------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | 0
0
9
4 | |
| WISTAR HAN RATS FEMALE | Control | | | | | | | | | | | | |
| | | 0
0
1
0
1 |
| | ANIMAL ID | 0
0
1
0
1 | 2
3
4
5
6 | 4
4
4
5
6 | 4
4
4
6
7 | 4
4
4
7
8 | 4
4
4
8
9 | 4
4
4
9
0 | 4
4
4
0
0 | 4
4
4
0
0 | 4
4
4
0
0 | 4
4
4
0
0 | 4
4
4
0
0 |
| | | | | | | | | | | | | | |

* TOTALS

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | |
|--------------------|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Parathyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | 10 |

GENERAL BODY SYSTEM

| | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|
| NONE | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|

GENITAL SYSTEM

| | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Ovary | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | 10 |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Lymph Node, Bronchial | + | + | + | + | + | + | + | + | M | + | + | + | 9 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

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BLANK .. Not examined microscopically

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Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | |
|-------------------------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----|
| | | 0
0
9
4 | |
| Control | ANIMAL ID | 0
0
1
0
1 | 0
0
1
0
2 | 0
0
1
0
3 | 0
0
1
0
4 | 0
0
1
0
5 | 0
0
1
0
6 | 0
0
1
0
7 | 0
0
1
0
8 | 0
0
1
0
9 | 0
0
1
0
0 | |
| Lymph Node, Mandibular | | + + + + + + + + + + | | | | | | | | | | 10 |
| Lymph Node, Mediastinal | | + M + M + + + + + + | | | | | | | | | | 8 |
| Lymph Node, Mesenteric | | + + + + + + + + + + | | | | | | | | | | 10 |
| Spleen | | + + + + + + + + + + | | | | | | | | | | 10 |
| Thymus | | + + + + + + + + + + | | | | | | | | | | 10 |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | |
| Mammary Gland | | + + + + + + + + + + | | | | | | | | | | 10 |
| Skin | | + + + + + + + + + + | | | | | | | | | | 10 |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | |
| Bone | | + + + + + + + + + + | | | | | | | | | | 10 |
| NERVOUS SYSTEM | | | | | | | | | | | | |
| Brain | | + + + + + + + + + + | | | | | | | | | | 10 |
| RESPIRATORY SYSTEM | | | | | | | | | | | | |
| Larynx | | + + + + + + + + + + | | | | | | | | | | 10 |
| Lung | | + + + + + + + + + + | | | | | | | | | | 10 |
| Nose | | + + + + + + + + + + | | | | | | | | | | 10 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|---|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Control | ANIMAL ID | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Trachea | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SPECIAL SENSES SYSTEM | | 1 | 2 | | | | | | | | |
| | | 2 | 1 | | | | | | | | |
| Eye | | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | |
| Harderian Gland | | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | |
| URINARY SYSTEM | | | | | | | | | | | |
| | | | | | | | | | | | |
| Kidney | | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | |
| Urinary Bladder | | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | |

* TOTALS

| | | | | | | | | | | | | |
|---|---|---|---|---|--|--|--|--|--|--|--|-------|
| Olfactory Epithelium, Accumulation, Hyaline Droplet | 2 | 1 | 1 | 2 | | | | | | | | 4 1.5 |
|---|---|---|---|---|--|--|--|--|--|--|--|-------|

| | | | | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|---|---|----|
| Trachea | + | + | + | + | + | + | + | + | + | + | + | 10 |
|---------|---|---|---|---|---|---|---|---|---|---|---|----|

| | | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|---|---|----|
| Eye | + | + | + | + | + | + | + | + | + | + | + | 10 |
|-----|---|---|---|---|---|---|---|---|---|---|---|----|

| | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|----|
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | 10 |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|----|

| | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|----|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | 10 |
|--------|---|---|---|---|---|---|---|---|---|---|---|----|

| | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|----|
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | 10 |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|----|

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

DAY ON TEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 |

WISTAR HAN RATS FEMALE

25 mg/m3

ANIMAL ID

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

| WISTAR HAN RATS FEMALE | 25 mg/m ³ | ANIMAL ID | DAY ON TEST | | | | | | | | | | | |
|------------------------|----------------------|-----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|------------------|------------------|
| | | | 0
0
9
4 | 0
0
9
4 | 0
0
9
4 | 0
0
9
4 |
| | | | 0
0
3
0
1 | 0
0
3
0
2 | 0
0
3
0
3 | 0
0
3
0
5 | 0
0
3
0
6 | 0
0
3
0
7 | 0
0
3
0
8 | 0
0
3
0
9 | 0
0
3
0
0 | 0
0
3
1 | | |

* TOTALS

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx

Inflammation, Chronic Active

Metaplasia, Squamous

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| 2 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | | | | 10 1.4 |
| 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | | | | | 10 1.7 |

Lung

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

Nose

Olfactory Epithelium, Accumulation, Hyaline
Droplet

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| | | | | | | | | | | | | | | 1 1.0 |

Trachea

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

DAY ON TEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 |

WISTAR HAN RATS FEMALE

50 mg/m3

ANIMAL ID

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Ovary
Cyst

+

3

1

1 3.0

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

| | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|------------------------|----------------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WISTAR HAN RATS FEMALE | 50 mg/m ³ | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

* TOTALS

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Larynx | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Chronic Active | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 10 2.4 |
| Metaplasia, Squamous | 2 | 2 | 2 | 3 | 4 | 3 | 3 | 2 | 3 | 2 | 2 | 10 2.6 |
| Lung | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Nose | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | 1 | 1 | 1 | 1 | 1 | 3 | | | | | | 5 1.4 |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | 10 |

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically M .. Missing tissue
X .. Lesion present A .. Autolysis precludes evaluation
I .. Insufficient tissue BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

- 1) Minimal 3) Moderate
- 2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

DAY ON TEST

WISTAR HAN RATS FEMALE**100 mg/m³**

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

* TOTALS

ALIMENTARY SYSTEMLiver
Bile Duct, Cyst

+

3

1
1 3.0**CARDIOVASCULAR SYSTEM**

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEMSkin
Inflammation, Chronic Active

+

2

1
1 2.0**MUSCULOSKELETAL SYSTEM**

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically M .. Missing tissue
X .. Lesion present A .. Autolysis precludes evaluation
I .. Insufficient tissue BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

- 1) Minimal 3) Moderate
2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST
ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|-------------------------------------|--------------------------|----------|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST
ANIMAL ID | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST
ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST
ANIMAL ID | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST
ANIMAL ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | * TOTALS | | | | | | | | | |

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Larynx | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Chronic Active | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 10 2.4 |
| Metaplasia, Squamous | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 2.0 |
| Ulcer, Focal | | | | | | 1 | | | | | | 1 1.0 |
| Lung | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Alveolus, Infiltration Cellular, Histiocyte | 2 | | | | | | 1 | 2 | | 1 | | 4 1.5 |
| Nose | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | 2 | | | 1 | 1 | 2 | 1 | 3 | | 2 | | 7 1.7 |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | 10 |

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically M .. Missing tissue
X .. Lesion present A .. Autolysis precludes evaluation
I .. Insufficient tissue BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

| WISTAR HAN RATS FEMALE | 200 mg/m ³ | ANIMAL ID | DAY ON TEST | | | | | | | | | | | | * TOTALS |
|------------------------|-----------------------|-----------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| | | | 0
0
9
4 | |
| | | | 0
0
9
1 | 0
0
9
2 | 0
0
9
3 | 0
0
9
4 | 0
0
9
5 | 0
0
9
6 | 0
0
9
7 | 0
0
9
8 | 0
0
9
9 | 0
0
9
0 | 0
0
9
1 | 0
0
9
0 | |

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

DAY ON TEST

WISTAR HAN RATS FEMALE**200 mg/m³**

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 9 | 0 |

*** TOTALS****NERVOUS SYSTEM**

NONE

RESPIRATORY SYSTEM

Larynx

Erosion, Focal

Inflammation, Chronic Active

Metaplasia, Squamous

Ulcer, Focal

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| 2 | | | | | | 1 | | | | |
| 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | |
| 3 | | | 3 | 2 | | | | 2 | | |

10

2 1.5

10 3.1

10 3.9

5 2.6

Lung

Alveolus, Infiltration Cellular, Histiocyte

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| 1 | | 2 | | 1 | 1 | 2 | 1 | 1 | | |

10

7 1.3

Nose

Olfactory Epithelium, Accumulation, Hyaline
Droplet

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
| 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | | |

10

9 1.7

Trachea

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + |
|---|---|---|---|---|---|---|---|---|---|---|

10**SPECIAL SENSES SYSTEM**

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

| | | | | | | | | | | | |
|--|--------------------------|-----------------|---|---|---|---|---|---|---|---|---|
| WISTAR HAN RATS FEMALE
400 mg/m³ | DAY ON TEST
ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | * TOTALS | | | | | | | | | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|----|
| Esophagus | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | 10 |
| Liver | + | + | + | + | + | + | + | + | + | + | 10 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | 10 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | 10 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|----|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | 10 |
| Heart | + | + | + | + | + | + | + | + | + | + | 10 |

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+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

TDMS No. 20519 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Metal working fluids (Syntilo 1023)

CAS Number: SYNTILO1023

Date Report Requested: 05/18/2011

Time Report Requested: 08:14:15

First Dose M/F: 11/03/08 / 11/03/08

Lab: BNW

| | | | | | | | | | | | |
|-------------------------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | DAY ON TEST | 0
0
9
4 | |
| WISTAR HAN RATS FEMALE | | | | | | | | | | | |
| 400 mg/m³ | ANIMAL ID | 0
1
1
0
1 | 0
1
1
0
2 | 0
1
1
0
3 | 0
1
1
0
4 | 0
1
1
0
5 | 0
1
1
0
6 | 0
1
1
0
7 | 0
1
1
0
8 | 0
1
1
0
9 | 0
1
1
0
0 |
| | | | | | | | | | | | |

*** TOTALS****ENDOCRINE SYSTEM**

| | | | | | | | | | | | |
|--------------------|---|---|---|---|---|---|---|---|---|---|----|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | 10 |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | 10 |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | 10 |
| Parathyroid Gland | + | + | + | + | + | + | + | + | + | + | 10 |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | 10 |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | 10 |

GENERAL BODY SYSTEM

| | |
|------|--|
| NONE | |
|------|--|

GENITAL SYSTEM

| | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|----|
| Clitoral Gland | + | + | + | + | M | + | + | + | + | + | 9 |
| Ovary | + | + | + | + | + | + | + | + | + | + | 10 |
| Uterus | + | + | + | + | + | + | + | + | + | + | 10 |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|----|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | 10 |
| Lymph Node, Bronchial | + | + | M | + | M | + | + | M | M | + | 6 |

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+ .. Tissue examined microscopically

M .. Missing tissue

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TDMS No. 20519 - 01

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Lab: BNW

| WISTAR HAN RATS FEMALE | 400 mg/m ³ | DAY ON TEST | | | | | | | | | | | * TOTALS |
|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
| | | | 0
0
9
4 | |
| ANIMAL ID | | | | | | | | | | | | | |
| | 0
1
1
0
1 | 1
1
1
0
2 | 1
1
1
0
3 | 1
1
4
0
4 | 1
1
1
0
5 | 1
1
1
0
6 | 1
1
7
0
7 | 1
1
8
0
8 | 1
1
9
0
9 | 1
1
0
0
0 | 1
1
1
0
1 | 1
1
1
0
1 | |
| Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Lymph Node, Mediastinal | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Thymus | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | |
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| NERVOUS SYSTEM | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | |
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Chronic Active | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 10 2.9 |
| Metaplasia, Squamous | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 10 4.0 |
| Ulcer, Focal | 2 | | | | 1 | 2 | 1 | | | | 3 | | 5 1.8 |

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| WISTAR HAN RATS FEMALE | 400 mg/m ³ | DAY ON TEST | | | | | | | | | | | | | * TOTALS |
|---|-----------------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|------------------|----------|
| | | | 0
0
9
4 | 0
0
9
4 | 0
0
9
4 | |
| ANIMAL ID | | | 0
1
1
0
1 | 0
1
1
0
2 | 0
1
1
0
3 | 0
1
1
0
4 | 0
1
1
0
5 | 0
1
1
0
6 | 0
1
1
0
7 | 0
1
1
0
8 | 0
1
1
0
9 | 0
1
1
0
0 | | | |
| Lung | | | + | + | + | + | M | + | + | + | + | + | + | + | 9 |
| Alveolus, Infiltration Cellular, Histiocyte | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 9 2.0 |
| Nose | | | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | | | 2 | 2 | 3 | 2 | 2 | 2 | 4 | 3 | 4 | 1 | | | 10 2.5 |
| Trachea | | | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Chronic Active | | | | | | | 1 | | | | | | | | 1 1.0 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | |
| Eye | | | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Harderian Gland | | | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| URINARY SYSTEM | | | | | | | | | | | | | | | |
| Kidney | | | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Urinary Bladder | | | + | + | + | + | + | + | + | + | + | + | + | + | 10 |

*** END OF REPORT ***

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